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The Application of the Munsell Color System to the Graphic Arts

By Arthur S. Allen

COLOR enters into all our lives, it surrounds us every hour of the day. We are unconscious of its influence because we know so little about it. It is more constantly about us than music and is more essential to our happiness.

Nature continually shows us beautiful color relations and prepares the best effects for our eyes. That is why she covers the earth with a grayish green carpet in spring and summer, and a grayish green yellow carpet in fall. She presents us with brief and brilliant sunsets. We admire them and exclaim at their beauty, but we would not notice them if they were constant. Their great beauty lies in the long gray days that surround them.

What makes the purple wistaria so beautiful in the warm sunlight of spring? It is the surrounding grayish green of the winding vine and stock, the grayish green being the complementary color. Complementary colors, when in proper proportions, make neutral and harmonize with each other.

The eye resents gaudy unbalanced color and is constantly in readjustment, straining to maintain balance, always closing when over-stimulated. All great colorists make use of small color differences, while the bungler is lead by the idea that "much makes much" and thus reaches his aims by strong color effects.

In the practical application of color in different branches of the graphic arts, we have suffered from not being able to describe color in definite terms. We have used *Perriwinkle Blue, Palm Beach Buff, Steel Blue,* and innumerable other terms which convey an entirely different meaning to each of us.

Robert Louis Stevenson's contribution on this subject is interesting. Writing from Samoa on Oct. 8, 1892, to Sidney Colvin in London, Stevenson says: ''Perhaps in the same way it might amuse you to send us any pattern of wall paper that might strike you as cheap, pretty, and suitable for a room in a hot and extremely bright climate. It should be borne in mind that our climate can be extremely dark too. Our sitting room is to be in varnished wood. The room I have particularly in mind is a sort of bed and sitting room, pretty large, lit on three sides, and the colour in favour with its proprietor at present is a topazy yellow. But then with what color to relieve it? For a little work-room of my own at the back, I should rather like to see some patterns of unglossy--well, I'll be hanged if I can describe this red—it's not Turkish and it's not Roman and it's not Indian, but it seems to partake of the two last, and yet it can't be either of them because it ought to be able to go with vermilion. Ah, what a tangled web we weave —anyway, with what brains you have left choose me and send some—many—patterns of this exact shade.''

Where could be found a more delightful cry for some rational way to describe color? He wants ''a topazy yellow'' and a red that is not Turkish nor Roman nor Indian, but that ''seems to partake of the two last, and yet it can't be either of them.'' As a cap to the climax, comes his demand for ''patterns of this exact shade.'' Thus one of the clearest and most forceful writers of English finds himself unable to describe the color he wants. And why? Simply because popular language does not clearly state a single one of the three qualities which are united in every color and which must be known before one may hope to convey his color conceptions to another. The Munsell system makes it possible to describe color as the eye sees it.

I take, for instance, an object which would be described as orange in color. I change the light on it and it is still orange in common terms but is greatly different in value and chroma. From the standpoint of accurate color, it is no longer the same orange and as it is neither lemon nor peach, how am I to describe the new color?

According to the Munsell system, the first orange is accurately described as Yellow Red with some numerical designation, e g., 6/9, meaning that it contains both yellow and red, reflects six degrees of light (absorbs four out of a possible ten), and is nine steps (out of a possible ten) from neutral gray. I now put it under a different light and instead of being the same orange as before, it is Yellow Red 8/8. Again I place it in a different light and it reads Yellow Red 7/6.

Color, according to Munsell, is composed of three dimensions: hue, value, and chroma.

Hue is the quality by which we distinguish one color from another, as red, blue, green, etc.

Value is the quality by which we distinguish a light color from a dark one, i. e., in the range from white to black.

Chroma is intensity of color, that by which we distinguish a strong color from a weak one of the same hue.

These three dimensions are well illustrated by a divided orange. Suppose we peal an orange and split it naturally into five sections, leaving them all connected at the bottom, to keep them in their relative positions. Then, let us say that all the reds we have ever seen, both light and dark, weak and strong, are gathered in one of the sections, all the yellows in another, all the greens in a third, all the blues in a fourth, and all the purples in a fifth. Next, we assort all these hues in each section so that the lightest of each hue are near the top and grade regularly to the darkest near the bottom. The orange is then filled with assorted colors graded from white to black, according to their values. A slice near the top will show light values in all hues, and a slice near the bottom will find dark values in the same hues. A slice across the middle discloses a circuit of hues all of middle value, this being midway between white and black. Thus we describe the two dimensions, hue and value. Now, suppose we stick a hat pin through the middle of the orange from one side to the other. Along this line would be described degrees of chroma, or intensity. This third dimension accounts for two opposite colors mixing to make gray in the center.

With the use of the Munsell system, we are able to describe a color accurately and are not obliged to resort to such descriptions as *Perriwinkle Blue, Palm Beach Buff, Steel Blue,* as above mentioned. With knowledge of this system, it is possible for a person in New York to call another in Boston on the telephone and definitely describe a color with mutual understanding. In fact, this is being done in many cases.

When F. G. Cooper, a user of the Munsell system in all his color work, lived in Hollywood, California, he did work for many eastern concerns. I remember his designing an advertising card for the Maryland Telephone Co. and calling the three colors for the card B G 5/5, R 5/5 with a background of N 7. The inks were delivered to the engraver, and the work printed to the satisfaction of both Mr. Cooper and the customer; and no color sketch was submitted.

The Munsell system is used in various branches of the graphic arts in designing, engraving, and printing. That most of the productions in these lines are poor is due largely to the wide gulf existing between the artist and the finished product. Take, for instance, the production of the colored cover of a magazine. What is the artist's position and contribution? He paints a girl's head for the cover (goodness only knows why it must always be a girl's head). It is a creditable effort, well done and suited to the purpose. It is accepted by the publisher. Then the slaughter begins. They paint a red background around it. It must be seen. (Of course, this prevents it from being seen, but they don't think so.) The names of all the contributors are arranged around the girl's head in this background. The name and date of the magazine is placed above, usually covering the hair and head. The artist's creation is now hardly recognizable but it pleases the publisher and he says it is what the people want. In order to make the magazine pay, the publisher has sold the back page to Jello, and Jello has paid $5,000 for the space. Therefore, what is left of the cover is now sacrificed to the indifferent color schemes of this $5,000 Jello package, which must be exactly like the sample regardless of everything else.